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A Worthy Example.

A CORRESPONDENT describes in another column the means adopted by a few public-spirited people living in a rural neighborhood for preserving a piece of natural scenery, which, without such intervention on their part, was doomed to speedy destruction. In many other places objects of great natural beauty have been sacrificed because no organized effort has been put forth to save them, and this little body of men and women—neighbors and friends—deserve the thanks of all intelligent and patriotic people, because they have acted on the principle that the destruction of an attractive bit of scenery, like the fringe of forest on a lake border, or a glen through which a mountain stream foams and tumbles, is a public loss. They believed that natural beauty is something to be cherished because it has a genuine value, and that we have no more right to waste it than we have to squander any other inheritance. The community for whom the scenery of the Chittenango has been preserved will be richer for all time because this possession has been secured to them and to their children, and many another community would have reason to rejoice if this example of establishing a trusteeship to hold against invasion and defacement some characteristic piece of wild nature were often imitated. The illustration of a portion of this amphitheatre, on page 379, from a photograph kindly furnished by Mr. L. W. Ledyard, will give some suggestion of the beauty which was threatened and rescued.

A special act of the Legislature was needed before a body corporate, with the power of succession, could be formed to hold and guard these falls and their surroundings, and keep them free forever for public use. But a general act for the incorporation of societies for providing parks and children's play-grounds was passed by the Legislature of this state, and approved by the Governor on May 15th, 1888. This act not only authorizes the acquirement of land by an association of citizens for use as public pleasure-grounds and play-grounds, but it gives them the right of employing officers, who shall, for the purpose of enforcing order and compliance with their rules, have all the powers and authority of public officers or patrolmen in the city, town or village where these parks or play-grounds may be situated. It enables any fifteen or more citizens to do, under certain restrictions, what the public-spirited people of Cazenovia have done. It permits them to secure lands for park purposes and for play-grounds when the municipal authorities of such communities are not inclined to do this as representatives of the people. Corporators, under this act, can acquire property by gift, purchase or bequest to the amount of half a million dollars, "and such additional amount as may be authorized by the Mayor and Common Council of any city, or supervisor of any town, or trustees of any village in which it is proposed to establish such parks."

It seems probable that, in many towns, parks and reservations can be established under this act, when it would be impossible to acquire them in the ordinary way. Distrust of the local government often restrains the generosity of those who would otherwise be inclined to give or bequeath land or money for such purpose. If the donor could name the men whom he desires to administer the trust, instead of turning over the property to officials subject to the mutations of politics, and to the influences that control professional politicians, donations of this sort would be more common. At all events, associations of citizens have now another way of securing reservations for parks and play-grounds besides the tedious and uncertain one of laboring for them through the municipal authorities, and any community which is willing to pay for a reservation can command the assistance of the local government to enforce their regulations for its control.

We observe that an association, under this act, has been formed in the city of Brooklyn for the purpose of establishing small parks and play-grounds about the city. It is to be hoped that other cities and towns will follow this lead, and that the act, which seems to us a wise one, will be fruitful of good results throughout the state.

The series of letters by Mr. J. B. Harrison, Corresponding Secretary of the American Forestry Congress, now in course of publication in GARDEN AND FOREST, deserves the attention of all who are interested in forestry in this country. Few American writers have studied the subject so long or so thoroughly, or have seen so much of the treatment of forests and woodlands throughout our country. His clear perception of the value and functions of forests, and his thorough comprehension of their importance to the national welfare, give to his discussions, in an unusual degree, the quality of directness and reality. We owe to him a vital development of the idea of the relation of forests to civilization, and his treatment of this subject is remarkably practical as well as philosophical.

After many years of familiarity with the Adirondack forest-region Mr. Harrison has recently engaged in a new examination of it, and our readers will find in this series of letters more complete information regarding actual conditions and tendencies there than they can obtain in any other way.

A joint resolution for the appointment of a Commission to ascertain the feasibility of purchasing and preserving the forests of New Hampshire has been introduced in the Legislature of that state, and referred to the Judiciary Committee. It is a model of clearness and brevity.

Whereas, The preservation of the forests of New Hampshire is essentially necessary, not only for the prosperity of our vast manufacturing interests, but also to preserve and increase that natural beauty of scenery which is so attractive to our visitors; and

Whereas, The hills and mountains in this state are being rapidly denuded of timber, and rendered unsightly by the acts of private parties owning the same; therefore

Resolved, That the Governor, with the advice of the Council, is hereby authorized and empowered to appoint a Commission, consisting of three able and discreet men, who shall examine and ascertain the feasibility of the purchase by the state of the whole or any portion of the timber-lands upon the hills

and mountains in the state, near summer resorts, or bordering upon the principal sources of the water-supplies needed for manufacturing purposes, with the view of preserving the same as public lands and parks, and report their finding to the next session of the Legislature.

Another joint resolution provides for the appointment of a Commission to inquire into the subject of preserving a portion of the unoccupied or other lands within the state as a public state park. The preservation of the mountain forests of New Hampshire is a subject of great importance to the manufactures of that state, to the owners of hotel property at the summer resorts, to land-owners, lumbermen, and, indeed, to the entire population. It is encouraging to see that the representatives of the people are disposed to action in the matter.

Some Popular English Plant Names.

IN English books, both old and new, the American reader often comes upon the names of flowers and plants, names which seem to be commonly used in England, but are not quite clear to him.

How often, for example, have we read of the Guelder Rose, naturally fancying it must be a Rose of some sort. But it is simply *Viburnum Opulus*, the familiar Snowball of our gardens. Michaelmas Daisies, again, are very well known to us, though we never use this name for them. It denotes various species and varieties of our wild Asters, which are largely cultivated in English gardens and much prized because they bloom so late in the year. For the same reason the so-called Christmas Rose is prized—another "Rose," which is not a Rose at all, although the Germans likewise call it the *Christrose*. It is the Black Hellebore (*Helleborus niger*), a perennial herb of the Ranunculus family, which has large palmate leaves, and on leafless scapes bears from one to four flowers, some three inches in diameter, white, five-petaled, with a tuft of yellow stamens, and, altogether, not unlike single Roses in appearance. In the warmer parts of England the Black Hellebore blooms as late as December; in the few American gardens where it is cultivated its flowers appear in winter or in earliest spring.

The Rowan-tree of Scotch literature is the Mountain Ash. The tree commonly called the Scotch Fir is not a Fir, but *Pinus sylvestris*, properly the Scotch Pine. The Weymouth Pine, of English books and nursery catalogues, is simply our common White Pine (*Pinus Strobus*), which was introduced into England by Lord Weymouth in the last century, and is now very largely grown there. The Sycamore of English writers is always the Sycamore Maple (*Acer Pseudo-platanus*), never the Buttonwood (*Platanus occidentalis*), as with us. Sallow is a common name in England for several species of Willow, but especially for *Salix Caprea*. The Wayfaring tree is *Viburnum lantana*, which we often grow as a garden shrub. A Lime-tree means a Linden, as every reader probably knows, although the name is rarely, if ever, used in this country. The true Lime is, of course, a relative of the Orange and the Lemon—*Citrus Limetta*. The Service tree is *Pyrus domestica*, but the name is also often given in England to some other species of Pyrus, as to *P. terminalis*, which is properly the wild Service tree.

Every one says "as black as a sloe," but many Americans would be puzzled to identify this fruit. It is the fruit of the so-called Black-thorn, which is not a Thorn, but a species of Plum (*Prunus spinosa*) that is a native of Europe, and possibly the remote ancestor of the cultivated varieties of to-day. It may be found in many old-fashioned New England gardens, and seems to have naturalized itself to some degree in their neighborhood. Witch Hazel is the name we give to *Hamamelis virginica*, and this signification is accepted even in English horticultural dictionaries; but when we meet with the term in transatlantic literature it denotes the true Hazel, for the Hamamelis does not grow spontaneously in Europe. The two plants belong to quite different orders, but the shape of their leaves is similar. The American tree, doubtless, got its name from this resemblance, while the Hazel had been often called Witch Hazel in England because of the use of its twigs for divining-rods.

The Laurel of Europe is, of course, not our Mountain Laurel (*Kalmia latifolia*). The true Laurel (Laurus) is a genus of two species of evergreen shrubs, one of them a native of the Mediterranean regions and the other of the Canary Islands. The Daphne, of the Greeks, is another name for the Laurel; and so is the Bay. Again, the Hemlock of the Greeks and of modern Europe is not our familiar forest-tree, which is properly the Hemlock-spruce, but a genus of biennial poisonous herbs, belonging to the *Umbelliferæ*. The generic name is Conium, and the common Hemlock is *C. maculatum*. And Myrtle is another name that we misuse, often applying it to *Vinca minor*, which is properly the Periwinkle, and is always so called in England. The true Myrtle is *Myrtus communis*, a sweet-scented shrub with white blossoms, which is a native of southern Europe and hardy in the warmer parts of England. It was dedicated to Venus in classic times, and is still the accepted flower for bridal wreaths in many parts of Europe.

Traveler's Joy is *Clematis Vitalba*, and all native species of Clematis are called in England Virgin's Bower. The Woodbine is a species of Honeysuckle (*Lonicera Periclymenum*). In this country the name is often applied to the Virginia Creeper, but the practice should be avoided, in spite of the fact that it is recognized in certain English horticultural dictionaries. When a plant has so pretty a popular name of its own as the Virginia Creeper, it is foolish to forget it and increase the confusion which, do what we will, can never be wholly obliterated from vernacular terminology.

"Trailing Arbutus" is plainly a misnomer for our May-flower (*Epigæa repens*); but the genus properly called Arbutus belongs to the same great Heath family. It includes trees and shrubs with evergreen, laurel-like leaves. The Strawberry-tree is *Arbutus Unedo*, and Pliny is said to have given it the name Unedo because the fruit was so bitter that no one would eat it twice. Yet, Ovid writes of "The Arbutus heavy with its warm, ruby fruit," and says that in the Golden Age it afforded acceptable food. Perhaps no fruit was bitter in the Golden Age!

Whin, Furze and Gorse are all the same thing—*Ulex Europæus*, a plant of the Pea family, with small yellow flowers. Broom (*Cytisus scoparius*) belongs to the same family, and has likewise yellow flowers. Another allied genus is *Genista*, which includes the Woad-waxen that has naturalized itself in certain districts near Boston. A popular name for the Broom was once *Planta genista*, as all readers of English history know.

There has been much uncertainty even in England in the use of the pretty word Eglantine. Many old writers undoubtedly intend by it the common English Sweet-Brier (*Rosa rubiginosa*), as Shakespeare, when he writes:

> "Quite over-canopied with luscious woodbine,
> With sweet moss-roses and eglantine."

But the Woodbine (which has already been identified as *Lonicera Periclymenum*) now goes by the name of Eglantine in certain parts of England, and this is probably what Milton means when he speaks of the "twisted Eglantine." Gilliflower, or Gillyflower, is another name which has borne various significations. It was borrowed of the French *Giroflée*, which signified some species of Pink, usually a Carnation. With the older English writers—Chaucer, Spenser and Shakespeare—it likewise meant the Carnation (*Dianthus Caryophyllus*). Now, however, it is commonly given in England to one species or another of the *Cruciferæ*, as to the Wall-flower or the Stock; and if used in this country it is apt to denote the Stock. Stockgillies is a name not infrequently heard.

With the Shamrock we have a third case of confusion. In Ireland to-day a Shamrock is often a White Clover (*Trifolium repens*), but as often the Nonesuch (*Medicago lupulina*), which belongs to another genus of the same great Pulse family. In England the name is commonly given to the Wood Sorrel (*Oxalis Acetosella*), and antiquaries are puzzled to decide which plant should be deemed the original Shamrock of St. Patrick. They have even discovered that among early authors the Water-cress was called the Shamrock, and meet the objection that it has not a three-fold leaf by saying that the now accepted interpretation of the Shamrock's significance is of comparatively modern origin.

The tall Shrubby Althæa (*Hibiscus Syriacus*) is usually called the Rose of Sharon in this country, and in view of the specific botanical name of the plant that seems an appropriate term. But in England to-day the Rose of Sharon is *Hypericum calycinum*—a dwarf under-shrub, with yellow flowers, belonging to the same family as the St. John's wort.

The true Daisy—the Daisy of Chaucer, of Burns and of all English poets—is, of course, not the White Weed to which we give the name, but *Bellis perennis*, the low-growing little double flower which we know only in the garden. The White Weed is commonly called in England the Ox-eye Daisy, a term which we apply sometimes to the Cone Flower (Rudbeckia). But the White Weed and not the true Daisy is the *Marguérite* of the French. All these Daisies belong to the vast composite

family, but the White Weed is not closely related to Bellis, being *Leucanthemum vulgare*, or *Chrysanthemum Leucanthemum*, the genus that includes all our cultivated Chrysanthemums.

When we use Bitter Sweet we write it as two words, and apply it to *Celastrus scandens*, which we also call Wax-work. When an Englishman uses it he writes it as one word—Bittersweet—and means a species of Nightshade (*Solanum Dulcamara*). This is a trailing perennial, with small, red berries, which is not native to America, although naturalized now in some places. Another species of the same genus (*S. Sodomeum*) is supposed to be the Apple of Sodom, described by Tacitus and Josephus.

London Pride is a Saxifrage (*Saxifraga umbrosa*), of southern Europe, which is very commonly cultivated in England, but rarely in this country.

The common Primrose of England is *Primula vulgaris*, and bears pale-yellow flowers. *Primula officinalis*, of a brighter yellow, is the Cowslip—a name we often give, unfortunately, to that very different plant, the Marsh Marigold. The Oxlip is still a third species, pale yellow and taller, *P. elatior*. The Pimpernel, known to all readers of Tennyson, belongs to the great Primrose family, but to another genus. It is *Anagallis arvensis*, also called Poor Man's Weather-glass—a little, low herb, with tiny white, red or blue flowers that close at the approach of rain. It is grown in gardens in this country, and in some regions has run wild in waste, sandy spots. When Longfellow wrote "Blue are her eyes as the Fairy-flax," he doubtless meant *Linum perenne;* but the name is more commonly given in England to the common Flax (*L. usitatissimum*).

Ophelia's Rue, which might be called "herb-grace o' Sundays," was, of course, not the Meadow Rue which is the only American plant we call by the name, but *Ruta graveolens*, which we sometimes see cultivated in gardens—an evergreen, somewhat shrubby plant. The Fennel which she mentions should not be conceived as the Fennel-flower, also called Love-in-a-Mist (*Nigella Damascena*), but as the herb of the vegetable garden (*Fœniculum vulgare*), which was regarded as a plant of ill-omen in former days. An old proverb says "Sowing Fennel is sowing sorrow." Rosemary we also sometimes find in our gardens—*Rosmarinus officinalis*, an evergreen shrub. The Basil of the poets is an East Indian plant, *Ocimum Basilicum;* but the wild Basil of northern countries is *Calamintha Clinopodium*, a plant of the Mint family.

Amaranth is a word often used by the poets to denote some unfading flower. One species of Amaranth is called, to-day, Love-lies-bleeding, and another Prince's Feather; but it is doubtful whether in poetical speech any particular flower has always been intended. It would be difficult to decide just what Milton had in mind when he wrote:

> "Amaranth, a flower which once
> In Paradise, fast by the tree of life
> Began to bloom."

The Gardenia, so often mentioned in English novels, is the flower we more often call the Cape Jessamine, although Gardenia, which is both the botanical and the proper vernacular name, is gradually coming into use with us. The plant is not a Jessamine, and it is not a native of the Cape. It belongs to the *Rubiaceæ*, and was introduced from China.

The Cuckoo-flower is the same as the Lady's Smock, a Cruciferous plant—*Cardamine pratensis*. The name Cuckoo-flower is also sometimes applied in England to one of the Pinks—*Lychnis Flos-cuculi*. Good King Henry is the Mercury Goosefoot (*Chenopodium Bonus-Henricus*), a common pot-herb in the northern parts of England. And the Love Apple of England, like the equally high-sounding *Paradisapfel* of Germany, is nothing but the Tomato.

Notes Upon Some North American Trees.—IV.

RHUS INTEGRIFOLIA, Brewer and Watson.—This species must find a place among the arborescent species of this continent. In southern California, where it abounds near the coast, covering the hills over great areas with an impenetrable mass of dense foliage, it rarely rises to a height of more than a few feet; on the Santa Barbara Islands it is sometimes a stout tree with a short, much-branched stem; and south of our boundary in Lower California it becomes a tree with a trunk sometimes nearly three feet in diameter.

No. 74. PISTACIA MEXICANA, HBK.—This plant, so far as is known, has been seen within the limits of the United States only near the mouth of the Pecos River, where Dr. Bigelow, the botanist of one of the Pacific Railroad-route expeditions, found a single plant forty years ago, which, in his notes, he described as "a small tree." It is widely distributed in northern Mexico, and very abundant on the mountains near Monterey. It is not a tree there, however, and it may be safely dropped from the North American Silva.

82. CLADRASTIS TINCTORIA, Raf.—The proper naming of this plant involves a question of nomenclature, which just now much interests botanists, who are pretty equally divided in their opinion with regard to it. The tree was discovered by the elder Michaux, whose son bestowed upon it the name of *Virgilia lutea*. Much later, Rafinesque, discovering that the plant was not a Virgilia, created the new genus Cladrastis for it, and ignoring Michaux's specific name called the tree *Cladrastis tinctoria*. One school of botanists affirms that a specific name being once given to a plant referred to its proper genus it cannot be changed unless an older name under the same genus is found. This school would, in changing a plant from one genus into another, retain for it the specific name under which it was first published, but in the case of a plant changed by some earlier author who had not retained the first specific name (either intentionally or accidentally), as in the case of our Virgilia, they would not correct his mistake. The other school takes the ground that the specific designation is the most important part of the name, and that it being once given to a plant it should be retained for it; and that if an author in changing a plant from one genus into another has neglected this rule, his mistake should be corrected under all circumstances, except, of course, where the specific name is already occupied by another plant in the same genus. M. A. De Candolle, the author of the "Rules of Botanical Nomenclature," whose particular studies and peculiarly critical mind give the highest value to his judgment in all such questions, supports, in a letter addressed last year to the *Journal of Botany* (xxvi., 287), the views of those authors who would retain the first specific name for a plant, even when another had come into long-established use. Mr. Bentham, the most experienced and judicious systematic botanist, held the other view; and so did Professor Gray, although he did not always strictly follow his rule in his works of descriptive botany. A rule which is not absolute, and which can be changed to meet special cases or to suit the personal inclinations of different authors, is likely to be often disregarded, and so to increase rather than diminish confusion of names. Changes in the names of plants are greatly to be regretted; and the creation of synonyms is an abomination, which nothing but the hope of reaching stability in nomenclature by this means can justify. For the changing of long-used specific names must cause confusion and inconvenience; but the tendency of the times points to the strict adhesion to fixed rules in natural-history nomenclature, and the sooner changes are made, which sooner or later are destined to occur, the more easily will the new names be adopted and the smaller will be the inevitable confusion which such changes occasion. A rule which provides for the adoption of the earliest specific name and allows of no exception, if strictly carried out, must eventually bring stability. I shall follow, therefore, in the Silva the custom partially adopted in the "Prodromus" of De Candolle, in Koch's "Dendrologie," and more recently in the writings of several American botanists, notably in the "Preliminary Catalogue of Anthophyta and Pteridophyta reported as growing spontaneously within one hundred miles of New York City," and restore, as far as possible, the specific names first applied to our trees. *Cladrastis tinctoria*, Rafinesque, will, therefore, become *C. lutea*, Koch, who first (Dendrologie, i., 6) united the specific name of Michaux with Cladrastis.

85. GYMNOCLADUS CANADENSIS, Lamarck.—This tree was named by Linnæus *Guilandina dioica*, and I follow Koch in calling it *Gymnocladus dioicus*.

87. Gleditschia monosperma, Walter.—Carl Koch (Dendrologie, i., 9) called attention to the fact that the oldest name for this plant is *G. inermis*, of Miller (1768), and that Walter's *G. monosperma* (1788) is later also than Marshall's *G. aquatica* (1785) and than Lamarck's *G. Carolinensis* (1786). The change from *G. monosperma* to *G. inermis* is certainly to be regretted, for the Water Locust is horribly armed, while the name *inermis* was used by Pursh (in 1814) to designate a thornless variety of *G. triacanthos*. If, however, the rule of priority is to be followed, the change seems necessary, as it is certainly contrary both to the spirit and to the laws of nomenclature to change a name simply because it happens to be inappropriate. *C. S. Sargent.*

New or Little Known Plants.

Rosa Engelmanni.*

MR. FAXON has here given a very good representation of a Rose that is widely distributed through our western region, but which has not hitherto been recognized as distinct. It has now been in cultivation at the Arnold Arboretum for several years, having been raised from seed collected by Dr. Engelmann near Empire City, Colorado, in 1881. It is the only species in temperate America that is characterized by an oblong fruit, and it is in this respect the representative of the Old World species, *R. acicularis* and *R. alpina*, to which it is otherwise also nearly allied. It is, indeed, in part the *R. acicularis*, var. *Bourgeauiana* of M. Crepin, the distinguished rhodologist of Brussels. But the only specimen of this species in the Gray Herbarium that was collected by Bourgeau (at "Fort bas Garry" in 1857) is ticketed by M. Crepin as *R. blanda*, var. *setigera*, while most of his variety *Bourgeauiana* (including Bourgeau's own specimen, ticketed "Mt. Rocheases à la base, 8 Aout., 1858"), belongs to the somewhat similar, but still quite distinct species, *R. Sayi*. In my revision of our species, published in 1885, the fruiting specimens that I had seen were referred to as belonging to a possible new species of the *R. Fendleri* group, though most of the flowering specimens were disposed of under *R. Sayi*.

R. Engelmanni is distinguished from *R. acicularis* most prominently by the frequent occurrence of a pair of slender spines below the stipules, by the resinous puberulence often found upon the leaves, with the accompanying glandular serrulation of the teeth, by the naked peduncles, and in growing specimens (so far as *R. acicularis* is represented in our gardens) by a difference in appearance of the foliage and in habit, which it is not easy to describe. The stems in both species are usually covered with slender prickles, and the rather large flowers are almost always solitary.

R. acicularis is rather more northern in its range, extending through northern Russia and Siberia to Japan and across Behring Sea into northern Alaska. *R. Engelmanni* appears to be frequent on the shores of Lake Superior and at some points on Lake Huron, and thence ranges westward by the Lake of the Woods, Pembina, and the upper Missouri to the Rocky Mountains. Here it is found from central Colorado to north of the boundary in British America, and westward to Idaho, and the upper Columbia in Washington Territory, where I collected it in 1880 near Fort Colville. It is a showy species in cultivation, both from its large flowers and its conspicuous bright red fruit.

S. W.

* R. Engelmanni, Watson.—Stems three to four feet high or less, usually more or less densely covered with scattered prickles, the infrastipular spines, when present, straight and slender, often wanting; leaflets five to seven, often somewhat resinous, puberulent beneath, and the teeth glandular-serrulate; stipules narrow; rhachis unarmed; flowers usually solitary, the peduncle and receptacle naked; sepals entire, naked or somewhat hispid; fruit oblong-obovate, six to twelve lines long.

Foreign Correspondence.

London Letter.

IT is nearly midsummer, and the Rose still monopolizes the talk and the work of the floral world; it is teeming in every garden, in every drawing-room, in every flower-shop, and even the street-hawkers' barrows are laden with Roses in early morning. The Rose exhibitor never was so busy, for he well knows that, if this hot and dry weather continues, the Rose season, like that of the Strawberries and Peas, will be very brief. One week we have a Rose Conference, and the next the Royal Botanic Society initiates a "Floral Parade and Feast of Roses," with an accompaniment of harmless absurdities. At the Alexandra Palace the populace is treated to "a celebration of the beautiful festival, 'The Crowning of the Rose Queen,' with full procession, choir, band and organ," while the great show of the National Rose Society, at the Crystal Palace, is patronized by the Persian monarch and the Prince and Princess of Wales. As to the Rose Conference, held by the Royal Horticultural Society, I hardly know whether to call it a success or a failure. It was a failure as regards the patronage it received, for it leaves the Society none the richer. It was a success both as regards the exhibition and the high character of the discussions. The majority of the visitors were those who took a real interest in Roses, and all seemed delighted at the abundant gathering of all sorts and conditions of Roses that could not possibly be seen at an ordinary Rose show or in the most richly-stocked Rose-garden. Besides an ample display of the modern Hybrid Perpetual race, the Teas and Noisettes, there were to be seen hundreds of old-fashioned Roses, which for real beauty, fragrance and interest do not yield much to their fashionable successors. Under the same tent were displayed the Roses loved by the gardeners of the last century, such as the Provence, the Monthly and the Damask, with the latest productions of modern growers, and though the difference between the old and the new is striking, the true rosarian loves them all.

It was an excellent opportunity for such noted growers as the Pauls, of Waltham Cross and Cheshunt, to exhibit the hundreds of the old flowers that blossom in comparative obscurity in their historic rosaries; and Mr. William Paul not only showed a marvelous array of old sorts, but a first-rate collection of new Roses that he has raised or put in commerce so that he might fairly lay claim to having shown the Rose as it was a century ago and as it is to-day. What delighted and interested visitors most were the collections of old garden Roses, especially the rambling sorts still found in some of the oldest English gardens, where change of fashion is unheeded. Of late years there has been a demand for these old climbing Roses, but the supply in many cases cannot be met. The fact is, the modern race had almost entirely supplanted the old sorts, and it did not pay nurserymen to keep them in stock. The date of the conference was a week too late for the full flower-tide of the climbing varieties, but, as it was, there were to be seen huge clusters of such favorites as the Ayrshire, the semi-double white Dundee Rambler, the pink Virginian Rambler, the old white Bennett's Seedling, called also Thoresbyana, which is one of the best of pillar plants. Then came the Evergreen Roses (*R. sempervirens*), such as the beautiful Felicité Perpetue, Flora, Myrianthiflora and others, all of which are matchless for festoons and pillars. The other climbers and ramblers were of the Polyantha, Multiflora and Hybrid races, and among them was the exquisite little Laure Davourst, a Multiflora with clusters of small pink rosettes; the Garland Rose, with its fawn-colored buds; Madame d'Arblay, a hybrid Musk Rose, with pink flowers; the nankeen yellow, Claire Jacquier and numerous other double ones. The typical *Rosa polyantha*, with clusters of small white single blooms, is very lovely if you catch it at its best, but it does not last so long as the double ones. As to the other old-fashioned Roses, the French, Gallica, Boursault, Provence and Damask, I imagine that almost every variety was to be found in the Waltham and Cheshunt collections, and amongst them were such much-prized climbers as Blairii No. 2, one of the best of all pillar Roses, Madame Plantier, Paul Perras, a pink climber, and the old Charles Lawson, still among the best kinds for growing in or near a shrubbery, where it will hold its own and ramble over the shrubs in a beautiful way. The variegated or striped sorts, such as the York and Lancaster, Rosa Mundi, Perle de Panachées, represent a distinct and beautiful class, to which has been lately added the Pride of Pergate, which is a striped petaled sport from Countess of Oxford.

The more modern garden Roses include, of course, the charming American W. A. Richardson, which grows more and more popular; Perle d'Or, a neat little variety of the Polyantha race with flowers paler, but of a similar tint to W. A. Richardson. It is, I am told, greatly in demand for coat bouquets. Quite a new addition is a sort called L'Ideal, also a climber, with smallish flowers of a sort of salmon-buff tint. It is quite different from any other in color, and is sure to become popular. Of the Pacquerette Roses, which is the

general name for the double Polyantha sorts, the best were Annie Marie de Montravel, producing an abundance of white rosettes; Cecile Brunner, a bright pink, and much better than Mignonette Gloire des Polyantha. Golden Fairy and Little Dot would be my choice among the rest. I must not omit the much cherished Moss Roses, which in every garden are indispensable. Here one could see all the sorts of the *R. centifolia muscosa* arrayed before him. Among the whites the best were Blanche Moreau, Perpetual White, Mousseline, Reine Blanche and White Bath, and of the colored varieties there were few that were so worthy of admiration as the old Common Moss which everybody knows.

Among the hundreds of varieties of Hybrid Perpetuals, Teas and Noisettes familiar to your readers, there was no Rose throughout the show so much in evidence as Bennett's new Her Majesty, which, I hear, bears such a high character in America. Here it was on every stand in superb condition, huge flowers of lovely color, and of fine form and substance. Its defects are the flatness of the blooms when fully open, and the absence of strong perfume. But it is a noble Rose, and a triumph for the English raiser. It is *par excellence* an exhibition Rose, and no collection is complete without it. Other Roses of Mr. Bennett's raising were also uncommonly fine, especially such first-rate sorts as Grace Darling, Princess Beatrice, Lady Mary Fitzwilliam, all of which are to be found in every Rose collection now. Mr. William Paul celebrated the occasion by a special exhibit of his new Roses. These included Duchess of Albany, a dark sport from La France, which is sure to make a way for itself; Marchioness of Lorne, an extremely fine Rose; Queen of Queens, shown splendidly in several collections; Pink Rover, which, as I have before remarked, is a really valuable addition to large-flowered climbing Roses; Sappho, a Tea-scented variety of a distinct rosy-fawn color, excellent in form and size. In Messrs.

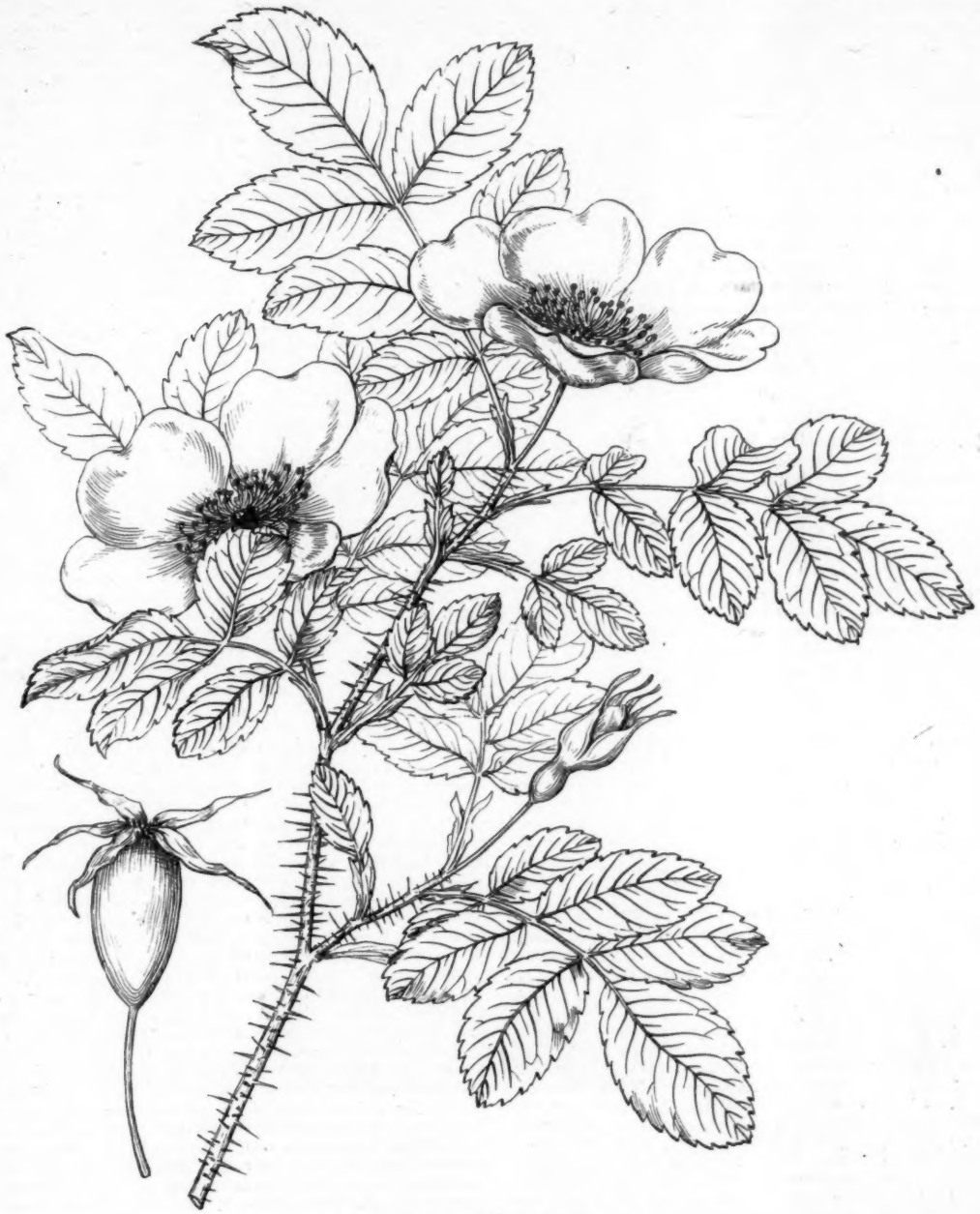


Fig. 121.—Rosa Engelmanni.—See page 376.

Keyne's collection were specimens of the new Climbing Niphetos, which seems to differ from the well-known favorite only in its climbing habit of growth, and which will prove a valuable quality, especially in house culture. The novelties at this exhibition, it will be seen, were comparatively few, and it was remarkable, not so much for new things as for old. The conference was held on two days, but, as none of the papers will appear in print before the journal of the society is issued, we shall have to wait an indefinite time for them. What to me seemed the most important outcome of the conference was the introduction to the notice of rosarians of a grand new rose, *Rosa gigantea*, a native of India. Dried specimens were exhibited, which showed what a large size the flower attains. It measures five inches across, and is pure white. It is satisfactory to know that seedlings have already been raised at Kew, but so far no one seems to know whether it will be hardy enough for open-air culture. Even if not, it will make a beautiful green-house plant. *W. Goldring.*

London.

Entomological.

The White Pine Weevil.

(*Pissodes Strobi*, Peck.)

THIS insect causes considerable damage in gardens and on grounds where evergreens are grown for ornamental purposes; not only White Pines are attacked, but other species of Pine and Spruce suffer equally. A letter recently received from Warren County, New Jersey, describes the injury so well that I reproduce parts of it. "Many of my evergreens—Spruces especially—are much infested by a borer which seems to deposit its eggs at the base of the new shoots and leaders, and spreads downward, killing all of the tree that is above it. . . . In this section every White Pine has lost its leader. I don't think I have seen a single exception. Is this done by the same insect that attacks the Spruces, or is it a different one? It is most provoking to see one's best and most promising trees cut down in this way." . . .

The letter was accompanied by specimens of infested Spruce twigs, which showed the characteristic work of the White Pine weevil, *Pissodes strobi*. The insect is a well-known one, and its history was first made out many years ago by Dr. Harris, who thought it required more than a year to come to maturity. Dr. Fitch afterward gave a very full account of the species, giving it a period of one year to undergo its transformations. Other writers have mentioned the insect at intervals, until most recently Dr. Packard has written on the subject and has recorded the species from April to September, his dates leaving little margin for intervals. Dr. Packard gives one brood for the species, the generalized account being that the imago appears in spring or early summer and oviposits soon after. From my collecting and observations, I believe there are in the latitude of New York two broods annually. The first of these issues as imago early in spring, say the latter part of April, or early in May, ovipositing in May, the larvæ of the second brood coming to maturity the latter part of July, the imago issuing during early August and ovipositing during that month.

The larva is a white grub, about one-third of an inch long, with a horny, yellow head, slightly curled as it lies in its cell. When full grown it forms an oval cell either just under the bark or in the pith, and changes to a white pupa, and very soon afterward to an imago. The imago is an oblong-oval and rather narrow weevil, about a quarter of an inch long, of a dull, dark chestnut color, with two dots on the thorax, the scutel and a short irregular band back of the middle of the wing-covers white, the wing covers also variegated with a few patches of tawny yellow. The eggs have not as yet been described. They are deposited in the leaders and other small twigs and branches—sometimes also on the trunks of old trees—at very short intervals. The larvæ eat very little more than twice their own length into the wood or under the bark, and a single, comparatively small shoot will harbor thirty to forty of them. Of course the smaller twigs thus interrupted in growth, and damaged, die, and the shape of young trees is spoiled, unless the owner believes—as some do—in small, bushy trees, in which case they are no serious drawback, since they seem never to kill larger branches or trees.

White Pine Weevil enlarged: *a*, larva; *b*, pupa.

No satisfactory remedies for borers have yet been discovered. Their mode of life is such that they are at no time in position to be attacked by insecticides. This weevil has its parasites that keep it in check somewhat, and some of our smaller birds seek out the larvæ and pupæ under the bark, and feed upon them. The only way of checking their ravages when they appear in parks is to trim out and burn all the infested branches and twigs very early in spring, and again about the middle of July. In this way the larvæ will be prevented from coming to maturity, and there will be no imagos. So long as there are other unpruned trees about, this remedy is palliative merely; but still, so many will be destroyed that a much larger proportion of leaders will escape, and the injury will be considerably reduced.

Rutgers College, July 25th, 1889. *John B. Smith.*

Cultural Department.

Shrubs with Conspicuous Fruit in July.

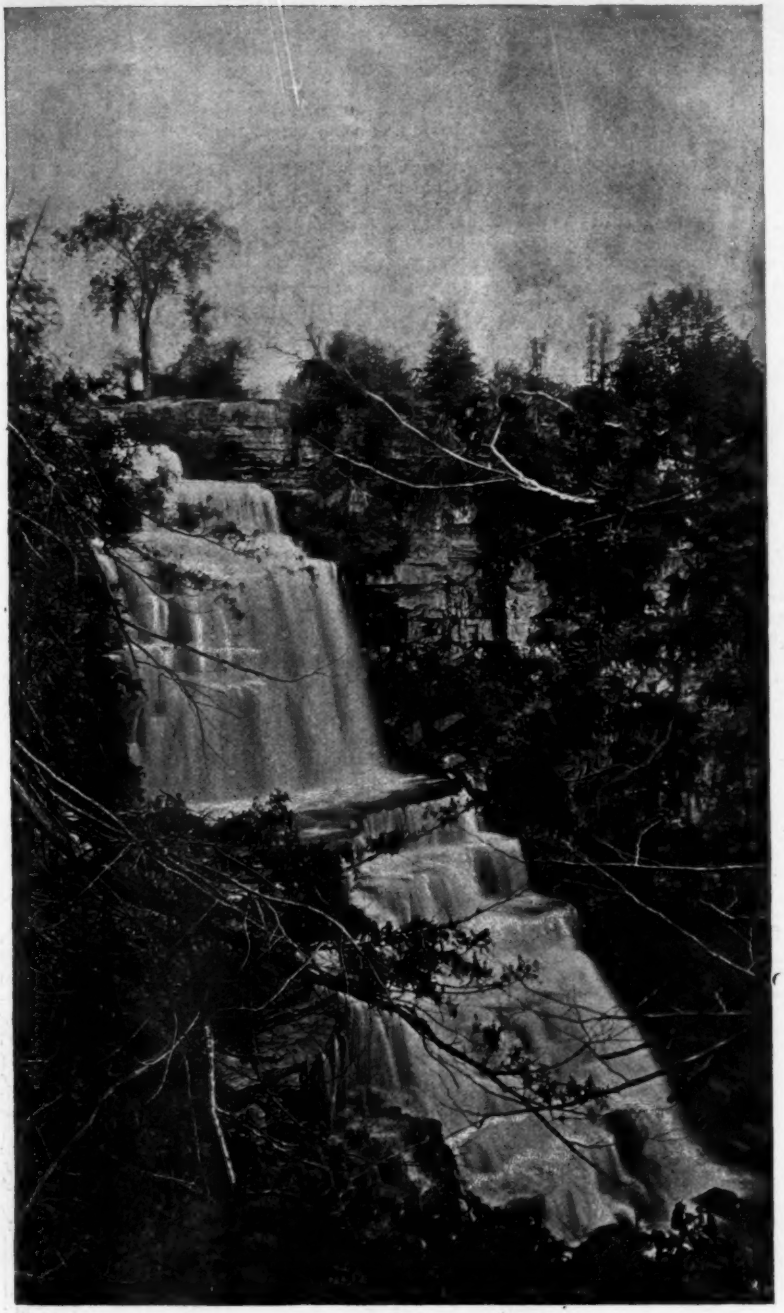
IN the early part of July there is usually no lack of shrubs in flower, many of which begin to bloom in the latter part of June. In the first week or two of July some of the Spiræas continue to give a more or less abundant show of flowers. *Spiræa sorbifolia* and the Steeplebush (*Spiræa tomentosa*) come into their best condition then, and they are accompanied by the fragrant Swamp Rose (*Rosa Carolina*) and by the odorless but very showy Prairie Rose (*Rosa setigera*).

The Common Elder (*Sambucus Canadensis*) is the most conspicuous native white-flowered shrub, and it is followed by the rarely seen *Stuartia pentagyna*, by the St. John's Worts (Hypericums), and by the Pepper bush (*Clethra alnifolia*), which joins the procession just in time to be counted a July bloomer, but will continue to open its fragrant blossoms throughout August. These are among the most conspicuous of the shrubs which flower about Boston in July, but as flowers become scarce, ripening fruits, or those that assume rich colors, come daily more and more into notice. The list of shrubs with showy or highly colored fruit in this month is short. There are many fruits which ripen, but most of them are insignificant in quantity, or inconspicuous, or, in some cases, so concealed by dense foliage that they are rarely observed.

The Early Elder (*Sambucus racemosa*) is one of the earliest to fruit of the tall, growing shrubs. Two groups of these plants growing side by side in the Arboretum present distinct variations in time of ripening and in color of fruit. The plants of one lot, originally collected in the western part of this state, had begun to ripen fruit by June 12th, and at the end of two weeks the berries had all been eaten by birds. This fruit was of the ordinary type, bright red, in somewhat loose cymes. The other group of plants, obtained from a New York nursery, did not ripen its berries until several days after the birds had eaten the last one of the first lot. These berries were very handsome, bright coral red, in close compact bunches, and they remained on the bush until about the middle of July, when the robins ate them.

Although these berries attracted the attention of all who saw them, there is probably no fruit so much remarked upon, at this season, as that of a form or species of bush Honeysuckle at present known as *Lonicera Ruprechtiana*. In many respects this species greatly resembles the common Tartarian Honeysuckle, but the flowers differ in size and shape, while the fruit of some individuals at least is incomparably superior. This fruit begins to ripen about the end of June, and up to the end of July the plants are beautiful objects. The shining dark-red berries, hanging in pairs on each stalk, almost literally cover the branches, which droop nearly to the ground under the weight.

Another Asiatic species, *Lonicera Morrowii*, also bears an abundance of handsome fruit on a background of lighter colored leaves than the last. The fruit of this species is said to be poisonous, but toward the end of July, when it has become very ripe, robins and catbirds eat it as freely as they do the fruit of *L. Ruprechtiana*. Some forms of the common Tartarian Honeysuckle also have claims to attention for their beautiful fruit, which is found to vary from dark red to orange on different plants when grown from the same lot of seed. When a plant of any of these Honeysuckles bears exceptionally beautiful fruit, it should be propagated by cuttings or layers, or in some other way than by seeds, if its special characteristics are to be preserved. Some varieties of the well-known *Lonicera Xylosteum* are exceedingly handsome, with shining, dark cherry-red fruit, which remains on the bushes throughout the month and often through August. Occasionally plants are found which are unusually prolific,



The Falls of the Chittenango.—See page 373.

and their berries are often half an inch or more in diameter. This species does not grow as large or tall as the Tartarian Honeysuckles, and the flowers are not as attractive, but it is a neat compact shrub.

Some of the fruit-eating birds are very partial to the white or bluish-white fruit of *Cornus alba*, a shrub usually sold by nurserymen under the names of *Cornus sanguinea* or *Cornus Sibirica*, with additional names for varieties. The red or scarlet bark of this species is its chief attraction, but the fruit is pretty and reaches its ripest state about the middle of July or even earlier. About ten days later it is followed by *Cornus alternifolia*, the berries of which begin to ripen and become blue-black. *Elæagnus longipes* (figured in GARDEN AND FOREST, vol. i., p. 499) does not appear to be one of those plants which produce a full crop of fruit only every second year, but annually bears an abundance of its rich, red, plum-like fruit, which, on long peduncles, hangs thickly along the under side of the branches for several weeks. When fully ripe this fruit is much liked by many persons, and it might be improved in flavor and size by cultivation and selection. Birds have found out that it is palatable, and this season, for the first time at the Aboretum, it was all carried away by them.

It is a pity that such a charming native shrub as the Cranberry Tree (*Viburnum Opulus*) is not more frequently seen in gardens. The showy flowers of the sterile form, known as the Snow-ball, and so commonly cultivated, are not as graceful or pretty as those of the wild plant. The sterile plants are very apt to look diseased and to be infested with Aphides, and, of course, they bear no fruit. The Cranberry Tree does not ripen its broad flat panicles of fruit until much later in the season, but in the latter part of July the berries, which are then quite large, assume a striking greenish-yellow tinged with bright red on the side toward the sun. The fruit of the Wayfaring Tree (*Viburnum Lantana*) is still green, but it, too, is bright red on the exposed side.

The Staghorn Sumach, with its large cone-shaped heads of scarlet fruit, which it retains during the rest of the summer and autumn, makes a most pleasing effect when grown in groups, and is always certain to attract attention in its native haunts.

The well-known Smoke Tree (*Rhus Cotinus*) hardly needs a notice. Its "smoke" is in its best condition during June and July, and in the latter month the few very small fruits it bears usually disappear, leaving only the pedicels with their feathery hairs and branchlets, which give the loose panicles the appearance from which the plant takes its popular name.

The different species of Amelanchier, Service-berries or June-berries, ripen their dark-blue, purple, or black fruits in the latter part of June and during July, but, as soon as ripe, they are eaten by birds. The native American species generally seems to ripen earlier than those from Europe and Asia. Two species of low-growing Cotoneaster in the Arboretum have ripe fruit in the last two weeks of the month, and it remains on the plants for a long time. The color of one is purple, and the other bright scarlet.

Daphne Mezereum, though a small shrub, and generally not very attractive, has two periods in the year when it does not fail to attract attention: (1), when its purple blossoms appear, before the leaves, in early spring; and (2), when the bright-red berries are seen among the foliage at the end of June. There is no plant more deserving of a place in small gardens or in larger shrubberies than *Rosa rugosa*. It continues to bear some of its large, single, purple or white flowers until frosts check all growth, and its fruit, which begins to ripen in the latter part of July, is at first bright scarlet, and later changes to a dark red. It is often an inch and a half in diameter, and remains on the plants until winter.

Arnold Arboretum. *J. G. Jack.*

Transplanting Conifers in August.

IN the year 1870 I proposed to overflow a tract of land for the purpose of ice-cutting. In order to do this it became necessary to remove about 40,000 trees of my nursery-stock, consisting of Spruce, Pine, Hemlock, Arbor Vitæ, etc., of various sizes, ranging from two to seven feet in height. The

transplanting was done during an unusually dry August, and the distance of removal was about half a mile. The fall months continued to be so exceptionally dry that many trees in the forests perished in consequence, yet the new plantation proved to be remarkably successful. This was due to the fine, yet compact, condition of the soil enabling the young roots to form rapidly, and the trees were well established before winter set in. Perhaps this was the first extensive experiment in the August planting of conifers in this country. But it was so conspicuously successful that confidence in the practice was soon established. The common name, Evergreen, indicates the persistence of the foliage, and these trees must be in full leaf at whatever season they are planted. The essential point to secure is quick root-action, to sustain the tree as speedily as possible. It is well known that the roots of evergreens are in active growth long after the upper growth is formed and while it is hardening. Hence it seems reasonable to conclude that when the soil is warm in the last half of August and early September and the air is growing cooler the equilibrium of a transplanted tree will speedily be restored. In the month of May, when by far the largest number of trees are planted, active growth soon follows, evaporation is excessive during the hot June days, and it is the common experience that the strain, upon trees of any size, is severe.

Let me cite two cases during the past year by way of comparison. On the 25th of August, 1888, I transplanted from the nursery into groups on an avenue eleven White Spruce trees, averaging five and a half feet high. They had ordinary care and have made healthy growth, none of the terminal shoots being less than twelve inches in length. Indeed, they compare favorably with their companions, which remain in the nursery. On the 14th of May last Mr. Bowditch, the well-known landscape-gardener, ordered 200 Spruce trees of the same size, and, as is his custom, sent his men to dig and replant; but, finding that he had dug forty trees more than were wanted, he requested permission to replant these in my grounds. Now, since his men are as careful planters as mine, a good opportunity offers to compare the results of planting in August or in May. Mr. Bowditch's trees lived, of course, but they look as May-planted trees usually do—that is, as if they had passed through a fit of sickness from which they were slowly recovering. In no case is the annual growth more than seven inches, and the average is less than six inches. In my judgment the different times of planting will account for all the difference in growth, and this is so obvious that I am sure Mr. Bowditch will excuse me for citing the case.

Newton Highlands, Mass. *Wm. C. Strong.*

Two Lessons in Strawberry Culture.

DURING a recent visit to the extensive small fruit and vegetable gardens of Mr. J. M. Smith, of Green Bay, Wisconsin, my attention was called to two striking facts in Strawberry culture. Mr. Smith is a large grower of Strawberries, and still adheres to the old Wilson as the most profitable variety, all things considered. Although this time-honored sort has generally failed of late years to maintain its former excellence, on his grounds it continues to yield immense crops, and has not as yet been surpassed in productiveness by any of the more recent introductions.

Mr. Smith ascribes his success with the Wilson chiefly to his method of propagating the plants. About ten years ago he noticed the fact that a bed set with plants that had grown from a setting made the preceding spring, and which had, consequently, never yielded a crop of fruit, made a better growth and bore more Strawberries than another bed of plants formed on a setting that had already yielded a crop. This raised the question in his mind whether the vital force required to mature a large crop of Strawberries in a productive variety like the Wilson may not so far impair the vigor of the plants that their progeny will become weakened. Since that time Mr. Smith has been careful, in setting new beds, to use only plants propagated from those that have never borne a crop, and as the result his Wilsons have fully maintained their original vigor and productiveness. In favorable seasons they still yield as high as 400 bushels per acre. The rust, which has been the ruin of this variety in most localities, does not appear in his newly-planted beds. After a bed has yielded a large crop of fruit, however, the plants are severely attacked by the rust; but as Mr. Smith does not usually take more than one crop from a setting, the rust has no opportunity to work harm.

Now for the two lessons. Mr. Smith generally, after plowing up a bed of Strawberries, devotes the ground to other crops for a year or more before re-setting it again with Strawberries. In the spring of 1888, however, he found it convenient to vary the rule, and to re-plant a portion of some beds that had produced Strawberries the preceding year. Although this ground had been kept in a high state of fertility, the result was most marked. The stand of plants on the ground that had produced a crop the year before was noticeably thinner and less vigorous, and the yield was smaller by half.

In one part of this ground, that was occupied the second time in succession, another experiment was tried. Mr. Smith departed from his custom here in another particular, and used young plants that had been propagated from a bed which had already borne a crop. He expected little from this portion of his field, but he received literally nothing, for the plants, which suffered a double abuse—first, in having been raised from weakened stock, and again, in having been planted in old Strawberry-ground, unrefreshed by rest and rotation—were so far enfeebled that they were abandoned as worthless and plowed under.

Mr. Smith's experience has proved it unwise to grow Strawberries after Strawberries on his ground, even with high manuring. There is nothing particularly novel in this, however; but very full of suggestion is the fact that a variety like the Wilson, which has been considered "run out" in many places, has not only maintained its vigor when propagated from vigorous young stock, but has also escaped damage from rust. Here is another field for experiment, not only with Strawberries, but with other fruits, upon which our experiment-stations should be prompt to enter.

Madison, Wis. *E. S. Goff.*

[Professor Goff sent with this article a photograph of the field described, and it enforces in a striking way the lessons of the text.—Ed.]

Orchid Notes.

Odontoglossum Harryanum.—Although only in cultivation for the short space of three years this species has acquired great popularity, and is universally acknowledged to be one of the best Odontoglossums yet introduced, presenting, as it does, a type of beauty different from that of any other species of the genus. It is not generally known that *O. Harryanum* is a native of Colombia, where it was discovered by a traveler named Rodriguez Pantocha, who, in 1886, sent plants of it to Messrs. Horsman & Company, of Colchester, England, from whom the stock, at that time, was obtained by Messrs. Veitch, to the head of whose establishment it was dedicated by the late Professor Reichenbach. Since then quantities have been imported by Messrs. Sander & Company, so that there is not much doubt of it being soon found in most collections.

The much compressed oval-oblong pseudo-bulbs, which become more or less wrinkled and furrowed when old, have on their summits two strap-shaped, pale-green leaves, from nine to twelve inches long. Cultivated plants generally produce racemes about a foot or eighteen inches long, bearing from four to twelve flowers, each over three inches in diameter; but in imported plants, racemes over a yard long, and having from twelve to twenty flowers, have been seen. Perhaps they will produce as many some day under cultivation! The elliptic oblong sepals are slightly recurved at the tips, more or less undulate on the margins, and of a deep chestnut-brown with yellowish, transverse, hieroglyphic markings, chiefly on the basal portion, while all round the margins is a conspicuous, narrow, yellow border. The petals have usually the appearance of being only partly expanded, a fact which many consider to be the only defect in the flower; occasionally, however, flowers may be seen which have the petals well spread out. They are oblong-acute in shape, reflexed at the tips, and much narrower than the sepals; the basal portion is pure white, blotched and spotted with mauve-purple; the upper portion is deep chestnut-brown, passing into a golden-yellow blotch at the tip, from which it extends into a narrow border on each side to the base. The subcordate-pandurate, acuminate lip is remarkable for the great beauty of its colors which present a striking contrast to each other. The basal portion is bright yellow, with a few brown spots, and from seven to nine serrulated crests, on each side of which are oblique stripes of rich violet-purple on a white ground; the anterior portion of the lip is infolded or convolute at the apex, and pure white in color, which, however, changes to bright yellow in old flowers, and in dried ones also.

O. Harryanum seems to be a continuous bloomer, as plants were in flower here last Christmas, and since then there has always been some in flower. July, however, seems to be the proper flowering season, there being several plants with fully expanded blooms, and many others in bud. During the summer months a cool and somewhat moist atmosphere

—such as *Miltonia vexillaria* likes—suits this species well, and a moderate supply of water, which, however, must be reduced in quantity while the plants are in flower, and for sometime afterwards, also. When the new growths appear, the plants, if necessary, should be repotted or top-dressed, and the compost should consist of rough fibrous peat, with a little sphagnum and charcoal mixed.

St. Albans, England. *John Weathers.*

Ærides Lobbii.—This is a handsome and useful Orchid, flowering profusely at a season when flowers in variety are scarce. It may be grown with little trouble in a warm, moist house, suspended in a basket filled with moss and charcoal. The lorate, leathery, deep-green leaves are about a foot long, and from the axils of these are produced densely-flowered racemes, from one to two feet long, and often branched. The flowers are white and rose, prettily dotted with amethyst. When placed in a cool, dry atmosphere, these flowers will last in perfection quite a long time. There are several varieties in cultivation, though none are particularly distinct. The type was introduced from Moulmein in 1868.

Another Orchid profusely in bloom just now is *Rhyncostylis retusa*, popularly known as *Saccolabium guttatum*. This is an old plant introduced from Java nearly seventy years ago. The short, stout stems are clothed with distichous, leathery, deeply-channeled leaves, about a foot long, and dark green. The cylindrical racemes are drooping, closely set with small white flowers, spotted and blotched with rosy-purple. There are a great many varieties of this fine Orchid. One of the rarest and best is Holfordianum, now in flower with us, a much stronger plant than the type, with longer and broader leaves, larger inflorescence, and a lip of rich crimson. Giganteum is not much inferior to this. These plants thrive in the warmest house, with abundance of water, if placed in pots, baskets or cylinders in a compost of peat, moss and chopped leaves. Without abundant sunlight good spikes need not be expected, but care should be taken that the leaves do not get burned.

Oncidium luridum.—This is not a very showy Orchid, but, if it lacks in quality, it certainly does not in quantity, for its flowers are produced by the hundred even on quite small plants. They last a long time in perfection, and are welcome at this season. It is an old plant, having been introduced in the early part of this century from Mexico, but some choice varieties have since been found in the West Indies. It is a bulbless Orchid, with large, very thick, carinate leaves, more than a foot long, dull green or nearly reddish-brown, and much spotted. The panicle is produced from the base of these matured leaves, and is from six to nine feet long. The flowers, nearly an inch across, are olive-green, blotched and spotted with brown. In the variety Dodgsonii the ground color is yellow; in Morrenii it is rose, spotted with crimson and tipped with yellow; Roseum is mottled with white and bordered with yellow. This Orchid is very easily grown in small pots and little soil, which should be rich and open. After growth is finished the plants should be put in a dry, airy house, with a good exposure to sunlight, and should be kept pretty dry through the winter, but while growing they require the maximum of heat and moisture.

Dendrobium crystallinum.—This is a fine summer-blooming Orchid, which we have had in flower for several weeks. It is a Burmese species, with long, slender, upright stems, from the sides of which the flowers are freely produced. These are white, tipped with magenta, the lip being orange at the base. They last a long time in bloom. This is an easy plant to grow, with the ordinary Dendrobium treatment. *F. Goldring.*

Some Native Plants.

ONE of the Gentian family (*Frasera Carolinensis*) is now worthy of notice. A remarkably fine plant, seven feet high, was found here in full bloom early in July. The stem about two inches through is a dark-purple color, with the oblong pointed leaves growing in whorls; these are light-green, smooth and glossy. The compound panicles of flowers follow the same arrangement as the leaves; in color greenish-white marked with dark spots, and with a fringed gland on each petal. The stately bearing and subdued color of this plant render it a pleasing object among gayer flowers and darker foliage. Moisture favors its growth, though it will live in dry situations. For brilliancy of color the *Asclepias tuberosa*, already spoken of in GARDEN AND FOREST, is now the most conspicuous of our wild flowers. It is not unusual to see upon one plant a mass of bloom two yards or more in circumference. All shades of orange are represented on different plants. Several of the Milkweed family have more attractive foliage than this, but none with us equal it in brightness and profusion of flowers. Among others, the slender *A. verticillata* is found here, and its threadlike leaves and tiny flowers are in strong contrast with its coarse relatives.

A pretty vine is *Dioscorea villosa*, on which the inconspicuous flowers are giving place to racemes of three-winged seed vessels of great beauty. Notwithstanding the angularity of these pods, the slender stems by which they hang admit of a very graceful arrangement, and their pale-green color and glossy surface add to their beauty. Of these clusters, containing from five to nine pods each, I have counted twelve on two feet of vine. The twining habit of this vine leads it into higher places than it could reach by the support of shrubs. In the instance noted it is so closely wound about a Smilax as to be scarcely distinguishable from it at a casual glance, the leaves of the two plants somewhat resembling each other in shape, color, and veining. The Smilax, with its profusion of tendrils, has climbed a rail-fence and grasped an overhanging apple bough, carrying with it the weaker neighbor. Both these vines would be valuable in the wild garden, though, perhaps, their mission is better fulfilled in this tangle by the roadside, where, shaded by a thicket of Hazels, they help to form one of Nature's charming masses of verdure.

Parnassia Caroliniana is an interesting little plant just coming into bloom upon the low wet ground. The flowers, which last well into autumn, are of a creamy-white color marked with delicate lines of green. The symmetrical arrangement of the stamens surmounted by little spheres is most noticeable, being in rows of three opposite each petal. It makes an admirable addition to the bog-garden or water-border.

Klinger Lake, Mich. *Dorcas E. Collins.*

The Pyramidal Saxifrage.—During the last few years the great value of this alpine plant for culture has been fully recognized by the London market florists, who were the first to bring it out of the obscurity of botanical collections. Its scientific name is *Saxifraga Cotyledon pyramidalis*, but is well known now as the Pyramidal Saxifrage. It belongs to that large section of the genus having fleshy-incrusted leaves, arranged in symmetrical rosettes. The rosette of a full and well-grown plant of this variety measures quite nine inches across, and from its centre springs the tall flower-spike, which rises from sixteen inches to twenty-four inches high and about half as much in diameter. It is minutely branched and bears thousands of white flowers about half an inch across, and these remain in perfection for several weeks if the plant is kept out of doors or in an airy green-house. The exquisite beauty of this Saxifrage makes it a great favorite with window-plant gardeners, and I have seen plants of it in window-boxes that came into bloom a month ago still in perfection and with more flower-buds to expand. Though it is a perfectly hardy plant and grows and flowers well on an open rockery, it is only by careful pot culture it can be flowered to perfection. The plants require to be grown in good, rich, loamy soil, and every runner picked from the main rosette as soon as it appears, otherwise the plant exhausts itself in feeding the runners instead of gathering strength for the production of a fine flower spike. Unheated frame culture is the best treatment for it, and a runner, if strong, taken off and rooted this year will flower the next; but, as a rule, three-year plants flower best. If this plant is not already known with your market florists, they should get it, as it would always repay culture. It sells as well as anything we have in Covent Garden at the present time.

Kew. *W. G.*

Turnips.—Many persons, in their fear of an early freezing, sow seed of the Flat Dutch and Purple-Top Strap-Leaf Turnips too early. These Turnips can be grown very quickly, and are only good when so grown, like a Radish. If sown early they grow too large for table use, and are worthless for any purposes but stock feeding, and only a little short of worthless for that. Flat Turnips, grown rapidly in the cool autumn weather, to about the size of an ordinary biscuit, are good enough for any one. When grown on a large scale, I have never found it profitable to sow in drills or rows. For sowing broadcast, I plow the ground and give it a heavy coat of manure on top, then harrow so as to slightly mix the manure with the surface soil, sow the seed and roll. The most difficult thing is to sow the seed uniformly without getting it too thick. This is best accomplished by roasting a lot of old and worthless seeds of Kale, Cabbage or Turnip in an oven until certainly dead. One part of good seed is then mixed, and mixed thoroughly, with about ten parts of the dead seed. This seed is then sown as uniformly as possible all over the ground at the rate of about ten (10) pounds of the mixture to

the acre, and this scatters the good seed thickly enough. The sowing may be done at any time in August, the latter half being better than the first, and, in the latitude of Virginia, September is early enough. Still, unless plenty of manure or fertilizer is used, the crop will not be of the first quality for table use—a quick growth being essential. For late use in winter and towards spring these flat Turnips are not desirable, and if none of the Long White French Turnips were sown early in July, a crop of Robertson's Golden Ball sown the first week in August, in drills, well enriched and carefully thinned and cultivated, will make a good crop of a very superior quality for winter keeping.

Fall Peas.—It will always pay those who are fond of Green Peas to use a spot otherwise vacant for sowing a crop of Premium Gem Peas about the middle of August, with a succession some ten days later. Select, if possible, a piece of land naturally moist, and plow a deep furrow by running the plow twice in a furrow. Scatter the Peas along the bottom of this deep furrow and cover lightly. This will leave the rows in a depression, which will be gradually filled in cultivation, and the plants will be able to stand an autumn drought better than if sown nearer the surface. The chief trouble will be from mildew, and if they escape that, the crop is reasonably sure. It will be worth while to experiment with some of the copper mixtures now used for fungus on Grape-vines, for preventing the mildew on Peas.

Crozet, Va. *W. F. M.*

Correspondence.

Forests and Civilization. IV.—The North Woods.

To the Editor of Garden and Forest:

Sir.—The boundaries of the original Adirondack forest-region are not very distinctly marked by Nature, and estimates of the extent of its area differ as the lines may be drawn so as to include more or less of the foot-hills, or slopes, connecting the more elevated central region with the plain below. It is, however, probably safe to say that we had here a tract of at least five millions of acres, or nearly eight thousand square miles, all of which was much better adapted to permanent forest growth than to agriculture, and upon which, therefore, forest conditions should have been permanently maintained. It would have yielded a steady revenue forever, as the trees matured and were cut off; the rivers would have been sustained by unfailing springs, and the uncontaminated air of this mountain forest-region would have made it the most valuable sanitarium in the world. It would have become a resort for health-seekers from all lands, and the addition to the wealth of the State from this latter use would have been far greater than the value of all the lumber it would have produced.

The State should never have sold the land or any part of it, but should have trained and equipped some of its young men for the care and management of this inestimable possession. This policy of State ownership and intelligent administration of this forest-region would have aided greatly the development of all the interests and resources of the State of New York, and would have made it far richer and more highly civilized than it is to-day. But we are obliged to accept the past, because it is out of our reach and beyond the possibility of change. We can deal only with existing facts and conditions. After a careful examination of nearly every part of the entire region I conclude that more than three-fourths of the original forest has been cut off, and that not more, probably, than about a million acres of virgin forest remains.

Most of this is in Hamilton County. St. Lawrence County has considerable, Herkimer has less, and Franklin County still less. Clinton County has been nearly all cut over. Essex County has but a small extent of virgin forest. Warren County has very little, and Saratoga none. Lewis and Oneida Counties have none, or next to none. Fulton County is nearly all cut out. The annual cutting increases every year, much more ground having been cut over, or more timber taken out, during the last season than in any one year before. Twenty years ago the Glens Falls lumber people thought that they had cut about as far up into the woods as they could go, and had nearly exhausted the region which was then accessible to them—that is, that they had cut nearly all the timber that could be floated down the streams to the mills. (The hard woods will not float.) But soon after that time they began "improving" the smaller streams, straightening and deepening them here and there, building dams, etc., and now they run logs down little threads of streams where a few years ago they never dreamed that they could float timber out profitably.

A tract of three hundred and eighty thousand acres in Herkimer, Lewis and Hamilton Counties, which formerly belonged to the Durant estate, has recently been purchased by a company of capitalists and lumbermen. Two of them are now in the St. Regis Lumber Company, and they will go on at once to begin cutting off the timber of the new purchase. Of this seventy-five thousand or a hundred thousand acres have been partly denuded of timber; the rest is all virgin forest. Most of it is Spruce, then Hemlock and White Pine. They will cut the hard-wood timber where they can get it out, and when it is wanted there will be means for getting it out everywhere. But the first thing thought of is the Spruce, of which between the Lowville region and Lake Ontario there are tens of millions of feet. The Popple is about all cleared out. This is the greatest body of Spruce now remaining in the country, and the plan is to make a Spruce trust. It is expected that the price of Spruce to be used in paper-making will go up, perhaps fifty per cent.

The Saranac water-shed was cut over long ago, and there is very little first growth now remaining. Upper, Middle and Lower Saranac, and their tributaries, drain a large region, but the cutting here has been light of late years, mostly second growth. The lumbermen have cut down to eight inches or below. It is absurd to cut so small timber, taking out young saplings which would be so much more valuable in a very few years, but in all that region there is very little thought about the future.

The Morgan Lumber Company bought the Oxbow tract in Hamilton County some time ago, and are cutting it off, and here they have met the cutting from the west.

There have been very heavy cuttings in the Grass River country, in St. Lawrence County, during the last year.

As has already been noted in your journal, the various railroads which penetrate the wilderness are being extended, and the destruction of the forest will, in consequence, proceed much more rapidly than heretofore. There has been a great deal of very indefinite writing and talk about the Adirondack forests, some of it misleading, because not based on any considerable knowledge of the facts of the actual condition and course of things in the woods. From three-fourths to four-fifths of the original forest has already been cut off, and hundreds of square miles—hundreds of thousands of acres—have been utterly denuded and ruined by the burning and washing away of the soil, so that centuries must pass before these vast tracts of bare and sun-scorched rocks can again produce valuable trees. Any rational or fruitful way of thinking of the matter must embrace a recognition of these facts. Whatever we may desire, whatever "might have been" if things had been entirely different, no amount of rhetoric or sentiment will avail to make the facts other than they are.

Carthage, N. Y. *J. B. Harrison,*
Cor. Sec. American Forestry Congress.

Mountain Meadows.

To the Editor of Garden and Forest:

Sir.—Your article on "A Mountain Meadow" on page 314 reminded me of what are without doubt the most striking mountain meadows in the eastern United States.

The highest mountains east of the Rockies are on the borders of Tennessee and North Carolina, the loftiest point being Mount Mitchell, 6,717 feet high. The traveler among these mountains will notice as a strange feature, the absence of crags and precipices. As a general rule, from the foothills to the summits of the highest mountains, we find moss and verdure. In May I climbed to the summit of Clingman's Dome, an altitude of 6,660 feet, and all the way to the summit, excepting in case of two or three short passes, our way led over nothing but rich loamy soil or turf. Just before ascending the Big Balsam mountain, from the west, one traverses the "Silas Meadows," fully 6,000 feet in altitude, a beautiful stretch of as true meadow as can be found in the lowest valleys. Here were ranging about 150 horses and cattle, alone on the summit with no cabin within miles. From this mountain meadow one can look over a grand wilderness, covering hundreds of square miles, where the axe of the wood-chopper has scarcely been heard, a truly virgin wood with magnificent forests of Balsams, Beeches, Birches and Tulip-trees extending in all directions.

On the summit of Thunderhead, made famous in Craddock's dialect stories of the Tennessee mountains, at a height of over 6,000 feet, in May, were grazing on a meadow of hundreds of acres, 500 cattle, 200 swine, and a large herd of horses and mules. The turf is fine and compact, and consists of Poas, Panicums, and other grasses. This meadow is not a little cleared patch of a few acres, but is of large area, bare of growing trees. In places on the summit may be found groves of

Beeches and Red Birches, stunted, gnarled and twisted, but they grow in a moist soil comparatively free from stones, and attain a height of 20 or 25 feet. On Defeat Knob, a part of Thunderhead, at the very top, is clustered a clump of Rhododendrons covering several acres, compactly growing together. And about this group is an abundance of moist sphagnum, which is fully three inches deep.

From this meadow, with an entirely unobstructed view, I counted nine distinct mountain ridges lying in various directions. And here on this top, where in May the snow had been "shoe mouth deep," were grazing on fine pasturage hundreds of domestic animals. Truly this was a strange sight!

Early in March the Trailing Arbutus had been on sale in Knoxville market, and the trees were leafing out, while in early May vegetation was well advanced, the trees being in full leaf. Yet on the tops of these mountains in May, when the trees were just expanding the bud, I gathered in their prime, Spring Beauties—Anemones, Trailing Arbutus—all the earliest flowers of spring. It was a striking fact that the clusters of Arbutus, which were much larger than any I had ever gathered among the hills of New England, were almost entirely devoid of odor. Yet they were exceedingly beautiful.

I cannot draw this communication to a close without referring to the enormous fields of Rhododendrons, or Laurels, as the mountaineers term them. They grow in such dense masses that it is absolutely impossible to pass through them, excepting over a bear trail which has been enlarged. For four miles a companion and myself struggled over the trail, passing down Miry Ridge, between thickets of Rhododendrons through which the only course was in the beaten path, just wide enough for cattle to pass on their way to the summits of the Smokies. This ridge, at least 5,000 feet high, comes to a sharp edge, and up the sides to the narrow top crowd these evergreens. And strangest of all, at times the trail is so mucky and wet that it is almost impassable. Frequently our horses, on a top not over forty feet wide, where one would have thought all moisture would rapidly drain off, sank into the muck above the knees, and nearly stuck fast.

In almost any direction, from these summits, one can see the dense green, level tops of Rhododendron thickets passing up and down the mountain slopes, and, as my companion remarked to me, "patches of fifty acres make a mighty small showing." Certain it is, northern people who have never been in these mountains can have no conception of the remarkable abundance of the Rhododendron.

Knoxville, Tenn. *C. S. Plumb.*

The Preservation of Chittenango Falls.

To the Editor of Garden and Forest:

Sir.—Permit me to report an instance of the preservation of a beautiful natural object by a rural community, a case that is probably quite unique. Two streams flow from the hills of Central New York; one, the Chenango, an Indian name meaning waters flowing south; the other, the Chittenango, the waters flowing north. The Chenango winds through broad, fertile valleys until, lost in the Susquehanna, it finds the sea in the gleaming Chesapeake; the Chittenango plunges eight hundred feet within a few miles, over crag and bowlder, to the lowlands, and on through Oneida and Ontario to the wild St. Lawrence.

Midway between Cazenovia and the village named for the stream, the Chittenango plunges over ledges of the limestone that upholds the hills of many midland counties, and falls one hundred and forty feet into as beautiful an amphitheatre of fern-clad rock as fancy ever painted. (See page 379.)

Cedars, Hemlocks and kindred trees cling to the ragged cliffs, where, dripping with spray, they shelter rare forms of *Scolopendrium vulgare* and other dainty Ferns and flowers. Since Jan Van Lincklaen, an officer of the Dutch navy, won by the beautiful surroundings of Cazenovia Lake (Owahagina), settled the place nearly a century ago, the falls of the Chittenango have been dear to all who loved undisturbed nature, and when plans for turning their power to mechanical use were proposed, the idea gave a shock to many of the old residents of the hill-top village, whose solicitude was so aroused that it assumed a protective purpose two years ago. Then a generous "trust" was formed; and money was raised with which the property was purchased; and an especial Act of the Legislature was procured, forming a perpetual trusteeship to hold and guard the falls free and forever. A little prudent work has opened a drive, enabling persons who cannot scramble to view the falls; but no art will be allowed to mark or mar the exquisite work that centuries have wrought with water, frost and glacier crush—the free-hand tools that have rough-hewn the crags which dainty nature decorates anew with the frailest and fairest plants, watered with the spray that drifts from forming rainbows in the sunlight to pearl drops in the shade.

The general Government has the Yosemite and the Yellowstone; New York and Canada have rescued Niagara; and the small rural community of Cazenovia has found the temptation to preserve the Chittenango Falls strong enough to win several thousand dollars for this unusual and, perhaps, all considered, unique purpose.

The late Horatio Seymour often said that "good works were catching." Perchance many other picturesque places may yet be saved from the axe, the forest-fire and the heavy tread of material purpose.

Cazenovia, N. Y. *L.*

The Floods in Pennsylvania.

To the Editor of Garden and Forest:

Sir.—The accounts of the late damages by flood in Pennsylvania and New York are accompanied, in nearly every instance, by statements of large losses of timber and lumber, washed away by the high waters. At Milford, Pennsylvania, it is said that $200,000 worth of unidentified lumber was deposited upon one single farm by the receding waters. The presumption, therefore, is that the water-sheds from which these floods originated have been recently and largely denuded. It would be well worth the while of friends of forestry, accessibly situated as to these devastated districts, to look thoroughly into the conditions of these water-sheds, and to publish the scientific results of their investigations. The statements in the newspapers indirectly confirm what foresters would expect to find as one cause of such unusual floods as have occurred this summer; that is to say, forest-destruction upon the water-sheds of the streams—and the amount of this destruction is shown by the immense losses of lumber—has presumably helped to swell these floods. Each new flood is headed in the newspapers by "Waterspout," or "Cloudburst." It is hardly reasonable to suppose that so many of these rare phenomena of Nature have occurred within so limited an area, and within so short a time. It is much nearer the results of experience to say that these terrible floods were caused by heavy, but not unprecedented, rainfall upon surfaces denuded of forest-growth by the axe, or fire, or both, and consequently unable to detain or absorb the rainfall, as they had formerly done. I trust that competent persons will be led to investigate the true facts as to the floods referred to.

Santa Monica, Cal. *Abbot Kinney.*

Recent Publications.

My Handkerchief Garden. By Charles Barnard. E. H. Libby, New York, 1889.

Mr. Barnard is popularly said to write on more subjects than any one else, not excepting Mr. Gladstone, and to write equally well upon them all. Certainly nothing could be better of its kind than this little volume, into the sixty-nine pages of which is crammed much useful information, conveyed in a delightfully easy way. His "Handkerchief Garden" was a house-plot in a suburban town, measuring twenty-five by sixty feet. In one year it yielded him "a garden, fresh vegetables, exercise, health and $20.49," and the why and the how are so clearly explained that any one who reads and remembers need not despair of doing likewise. How the beginning was made, what work was done, and at what times and seasons; how preparatory plans were laid and plants started in the house, are successively set forth. A couple of chapters on special products follow, and then two—perhaps the most interesting of all—called "What to Do With a City Yard" and "A City Fruit Garden." For those unfortunates who are compelled to pass the whole summer season in large towns, there is a wealth of happy suggestiveness in these pages, where we find no vague bits of general advice, but exact directions, what is best to plant, and how to plant it, and sketch-plans illustrating the text. We should have liked to see more attention paid to flowers, the culture of vegetables being that which Mr. Barnard most insistently recommends. Nevertheless, it is certainly true, as he says, that while vegetables can be cheaply bought in the city, it is hard to get any of them fresh, and many kinds cannot be considered perfectly fresh except when gathered just before they are eaten. No extracts from the little volume would be valuable—its merit is in its continuity and careful regard for details. Nor would it in any case be necessary to cull for our readers' benefit any information from a work which can be purchased for so small a sum as twenty-five cents.

Notes.

A Redwood-tree, twenty-eight and a half feet in diameter, was recently cut in Tulare County, California.

Mr. Henry Shaw, the founder of the celebrated botanical gardens in St. Louis, has just celebrated his eighty-ninth birthday.

During the wet, warm weather Tomato-plants have been making extraordinary growth, while setting very little fruit. Good gardeners often run a sharp spade down beside the plants to prune their roots and induce the formation of fruit.

The Asparagus beetle this year seems proof against air-slacked lime. London purple and Paris green are out of the question while the plants are being cut for table use, but an occasional sprinkling with the arsenites even now will materially lessen next season's labors to hold the pest in check.

In California the fruit of *Prunus Simoni* develops into a handsome oblate, deep purple Plum much larger than it appears in the engravings of the fruit grown elsewhere. It ripens very early, and is very durable in shipment, so that it promises to take a high rank there among early-market Plums. The *Pacific Rural Press* observes that nurserymen are propagating it extensively.

The Longfellow Memorial Association in Cambridge, Massachusetts, is now preparing the land which lies between the old mansion and Charles River. The plan includes a terrace, commanding a wide view over the broad green river-marshes, a loggia upon this terrace, the walls of which will bear reliefs and inscriptions, and a garden lying below the terrace and overlooked from it. The object is to unite to appropriate monumental memorials the open prospect which Mr. Longfellow so much enjoyed. Charles Eliot, landscape architect, and C. Howard Walker, architect, are in charge of the work.

A bulletin just issued by Professor Cook of the Agricultural College of Michigan, illustrates the important services of parasitic and predaceous insects in overcoming our insect foes. About July 1st the wheat heads throughout a large region in the western states were crowded with aphides, five or six often attacking a single kernel and sucking out its vitality. It seemed as if the grain crop was doomed, but in a week the rapidly increasing enemies of the lice were in the ascendent, and in ten days the crop was safe. The bulletin gives illustrations of these parasites, together with the predaceous flies and the Lady-bird beetles and of their mode of attack. Tiny as these insects are, they have saved millions of dollars to the farmers of the West this year.

In a recent work by Professor Hartig it is stated that a count of the annual rings of a tree when cut three or four feet from the ground may not give the accurate age of the tree. Where trees are crowded in a forest and have developed feeble crowns, the greatest annual increment is just below the crown, and it diminishes regularly downwards. When the leaf-area is not sufficient to afford food-material to provide for a sheet of cambium all over the tree, the growth stops before reaching the bottom, and the ring which is found twenty feet up the trunk may fail altogether before it reaches the ground. In such trees there may be rings lacking at three feet high for certain years, and the total number of rings would be less than the number of years in the tree's life.

A bill has been introduced into the English House of Commons, the object of which is to provide instruction in agricultural and horticultural subjects in public elementary schools, and to afford practical illustration in such teaching. The Industrial Agricultural Education Bill, as it is called, would not only secure for children in rural districts practical instruction on such subjects as fruit, flowers, and vegetable growing, the proper method of keeping cattle, rotation of crops, packing fruit for market, and other matters of equal importance; it proposes, further, that the instruction in these branches shall be carried on after the children leave school. To effect this, it is proposed to establish schools at which lessons would be given in the evenings and on Saturday afternoons. To induce parents to keep their children at school for a longer period, or to send them to the new schools, the promoters of the measure advocate the provision of a small number of scholarships of the value of thirty shillings per annum, and tenable for two years, for children who have passed the fourth standard.

The free Gladiolus show, which Peter Henderson & Co. have established as a regular feature of the floral year in this city, was visited by several thousand people last week, and the flowers, in spite of the drenching and pelting they had received from unusually violent rain-storms, were notably good. A new Gandavensis seedling, nearly pure white, was greatly admired, as was a fine group of hybrids containing the blood of *G. purpureo-auratus*. Mr. Sturtevant sent, from Bordentown, a tank full of Nelumbiums and other aquatics. Mr. Henderson showed some remarkable flowers of a variety of *Lilium auratum*, known as Rubro Vittatum, in which the golden band through the petals is replaced by one almost crimson. A superb display of flowers of tuberous-rooted Begonias was contributed by Mr. T. Griffin, gardener to Alfred Sully, Esq., of Hackettstown, New Jersey. Many of the single flowers were nearly five inches in diameter, and the double ones were nearly as large as Hollyhocks, while the colors could hardly be excelled in richness, delicacy or variety. The plants were seedlings, and had grown in the open air and exposed to full sunshine. The exhibition remained open three days.

Constant and growing demand on a constantly diminishing timber supply in all the civilized countries is beginning to have a visible effect. In a careful article the *Lumber World* states that despite the systematic efforts of the various European countries to maintain by forestry regulations an adequate supply, the whole wooded area of Europe has dwindled to 500,000,000 acres, or less than one-fifth of the area of the continent, while the demand goes on increasing as the population increases in density and consequent poverty, forcing them to use timber, as a cheaper material than brick and stone, to build houses. Norway and Sweden have parted with nearly all their available forests. Northern Russia has been stripped so bare that at present the single city of St. Petersburg demands more than that country can spare. The fostered German forests yield an ever decreasing supply, which constantly deteriorates in quality. Bohemia, Galicia, Transylvania and some adjacent sections still possess considerable areas of forest, but they are in inaccessible mountain regions, with neither railroads nor navigable streams to make the timber available. The forests on the shores of the Adriatic have disappeared. France and Spain, Portugal and Italy, Turkey and southern Russia have little or no timber that is available. Great Britain long ago ceased to depend to any extent upon her own small woodland areas for timber. In the United States the consumption of timber goes on at an amazing rate, each year seeing hundreds of thousands of acres stripped of forests. Canada has large wooded areas yet, but the demand upon them makes it only a question of time when they shall be stripped. Asiatic, African and South American forests are still important, but at present they are unavailable because of their remoteness from the centres of consumption. The civilized world will soon awake to the fact that its timber supply is exhausted to a serious degree, but as yet there seems to be but little appreciation of the true state of affairs.

According to the New York *Lumber Trade Journal* Birch twigs are worth a good deal, besides their reputed value as accelerators of the sluggish school-boy. Even the leaves and young shoots secrete a resinous substance, which, under long names, is sold as a medicinal preparation for as high as sixteen dollars a fluid ounce. The inner bark secretes a bitterish alkaloid, not unlike cinchona in its nature, and is used largely as an adulterant for quinine in many parts of Europe. The so-called "Cinchona Mixture" has been found by analysts to consist, in many instances, of the alkaloid found in the inner bark of the humble Birch tree. The outer bark, subjected to dry distillation, yields an empyreumatic oil, having the peculiar odor of Russia leather; and the secret of preparing skins—and that too of the very poorest quality of skins, being taken from cattle that have perished on those barren, desolate plains—is the only obstacle, thus far, to prevent American artisans from competing with Russia and Austria in fine leather goods. The oil of Wintergreen, so useful, fragrant and expensive, is nearly always adulterated with Birch oil—much of it even is Birch oil, pure and simple, but is sold as Wintergreen oil, and is Wintergreen oil to all intents and purposes, having, when properly prepared and refined, the same properties. The Birch limbs, twigs, bark, and even the leaves, if a more commercial oil is to be made, are gathered and placed in a large tub containing a coil for steam heating, and as fast as the mass accumulates it is kept covered with water. After becoming nearly full, steam is turned on, and the batch kept about blood-warm for twenty-four hours. This will dissolve nearly all the oil and resinous matters, which, being precipitated, causes the mass to assume a very sticky consistency. By means of a wooden connection with a small barrel or keg, the tank is made tight and brought to a boil. The steam, having previously dissolved the oils, etc., will now vaporize them, and will condense in the last named keg. After a few hours the job is done, the keg is bunged or corked up, and is ready for shipment as commercial Wintergreen oil, though made from Birch refuse.